

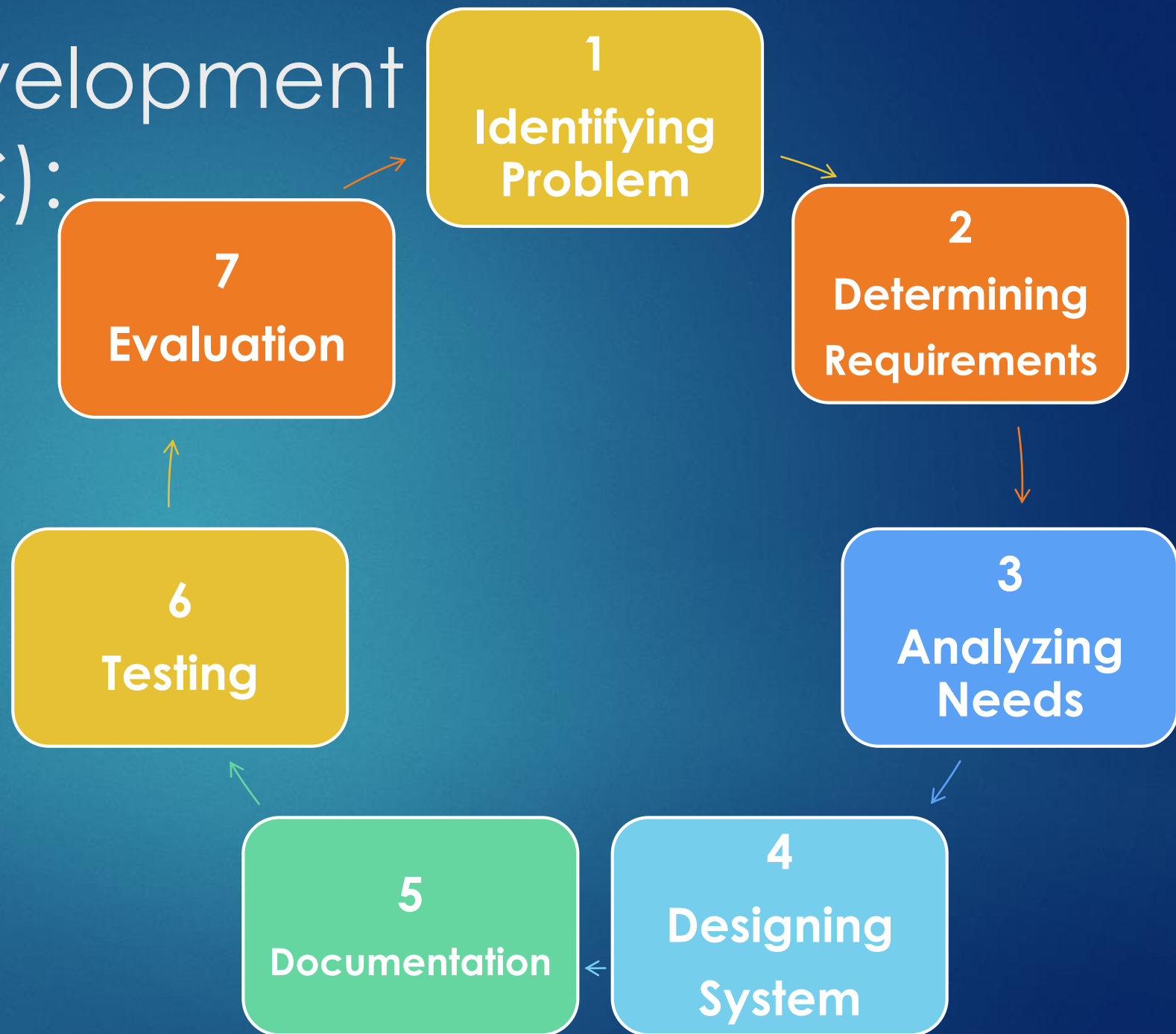
Lecture (3)

System Analysis & Design

BY HEBA ALDEBANY

The Systems Development Life Cycle (SDLC):

- The SDLC is a phased approach to analysis and design holds that systems are best developed through the use of a specific cycle of analyst and user activities.



1. Identifying Problems, Opportunities, and Objectives in SDLC (1/2):

- ▶ Analyst is concerned with correctly identifying problems, opportunities, and objectives.
- ▶ Critical to the success of the project, because no one wants to waste subsequent time addressing the wrong problem.
- ▶ Analyst look honestly at what is occurring in a business.
- ▶ Others will bring up these problems, that's why the analyst was called.
- ▶ Opportunities are when analyst believes can be improved through the use of computerized information systems.
- ▶ Identifying objectives is also an important component of the first phase.
- ▶ Analyst must first discover what the business is trying to do, to be able to see whether information systems applications can help.

1. Identifying Problems, Opportunities, and Objectives in SDLC (2/2):

- ▶ The people involved in the first phase are the users, analysts, and systems managers coordinating the project.
- ▶ **Activities** in this phase : interviewing user management, summarizing the knowledge obtained, estimating the scope of the project, and documenting the results.
- ▶ **Output** of this phase is a feasibility report containing a problem definition and summarizing the objectives.
- ▶ Management must then make a decision on whether to proceed with the proposed project. Maybe no funds in its budget or wishes to tackle unrelated problems, or problems do not require a computer system
- ▶ Different solution may be recommended, and the systems project does not proceed any further.

2. Determining Human Information Requirements in SDLC (1/2):

- ▶ The next phase the analyst enters is that of determining the human needs of the users involved.
- ▶ Need to understand how users interact in the work context with their current information systems.
- ▶ Interactive methods are used such as interviewing, sampling and investigating hard data, and questionnaires, along with observing decision makers' behavior and their office environments, also prototyping.
- ▶ The people involved in this phase are the analysts and users, typically operations managers and operations workers.

2. Determining Human Information Requirements in SDLC (2/2):

Analyst should answer question such:

- ▶ “How can the new system be designed to be easy to use, learn, and remember?”
- ▶ “How can the system be made pleasing or even fun to use?”
- ▶ “How can the system support a user’s individual work tasks and make them more productive in new ways?”
- ▶ how to make the system useful to the people involved?

3. Analyzing System Needs in SDLC:

- ▶ Analyst in this step analyze system needs.
- ▶ Tools and techniques help the analyst make requirement determinations, such as data flow diagrams (DFD) to chart the input, processes, and output of the business's functions, or activity diagrams or sequence diagrams to show the sequence of events, illustrate systems in a structured, graphical form.
- ▶ From them a data dictionary is developed that lists all the data items used in the system, as well as their specifications.
- ▶ Analyst prepares a systems proposal that summarizes what has been found out about the users, usability, and usefulness of current systems, and estimation cost-benefit.
- ▶ If one of the recommendations is acceptable to management, the analyst proceeds along that course.

4. Designing the Recommended System (1/2):

- ▶ Analyst uses the information collected earlier to accomplish the logical design of the information system.
- ▶ Analyst designs procedures for users to help them accurately enter data correctly to the IS by using techniques of good form and Web page or screen design.
- ▶ The user interface is designed with the help of users to make sure that the system is audible, legible, and safe, as well as attractive and enjoyable to use.
- ▶ Examples of physical user interfaces include a keyboard (to type in questions and answers), onscreen menus (to elicit user commands), and a variety of graphical user interfaces (GUIs) that use a mouse or touch screen.

4. Designing the Recommended System (2/2):

- ▶ Also includes designing databases that will store much of the data needed by decision makers in the organization.
- ▶ Analyst also works with users to design output (either onscreen or printed) that meets their information needs.
- ▶ Analyst must design controls and backup procedures to protect the system and the data.
- ▶ It may also include decision trees or tables, UML or data flow diagrams, and the names and functions of any pre-written code that is either written in-house or using code or other class libraries.

5. Developing and Documenting Software:

- ▶ Analyst works with programmers to develop any original software that is needed.
- ▶ Analyst works with users to develop effective documentation for software including : procedure manuals, online help, and Web sites featuring Frequently Asked Questions (FAQs), on Read Me files shipped with new software.
- ▶ Documentation should address the questions they have raised and solved jointly with the analyst.
- ▶ Documentation tells users how to use software and what to do if software problems occur.
- ▶ Programmers have a key role in this phase because they design, code, and remove syntactical errors from computer programs.

6. Testing and Maintaining the System(1/2):

- ▶ It is much less costly to catch problems before the system is signed over to users.
- ▶ Some of the testing is completed by programmers alone, some of it by systems analysts in conjunction with programmers.
- ▶ First with sample data and eventually with actual data from the current system.
- ▶ Often test plans are created early in the SDLC and are refined as the project progresses.

6. Testing and Maintaining the System(2/2):

- ▶ Maintenance of the system and its documentation begins in this phase.
- ▶ Businesses spend a great deal of money on maintenance.
- ▶ Some maintenance, such as program updates, can be done automatically via a vendor site on the Web.
- ▶ Many of the systematic procedures the analyst employs throughout the SDLC can help ensure that maintenance is kept to a minimum.

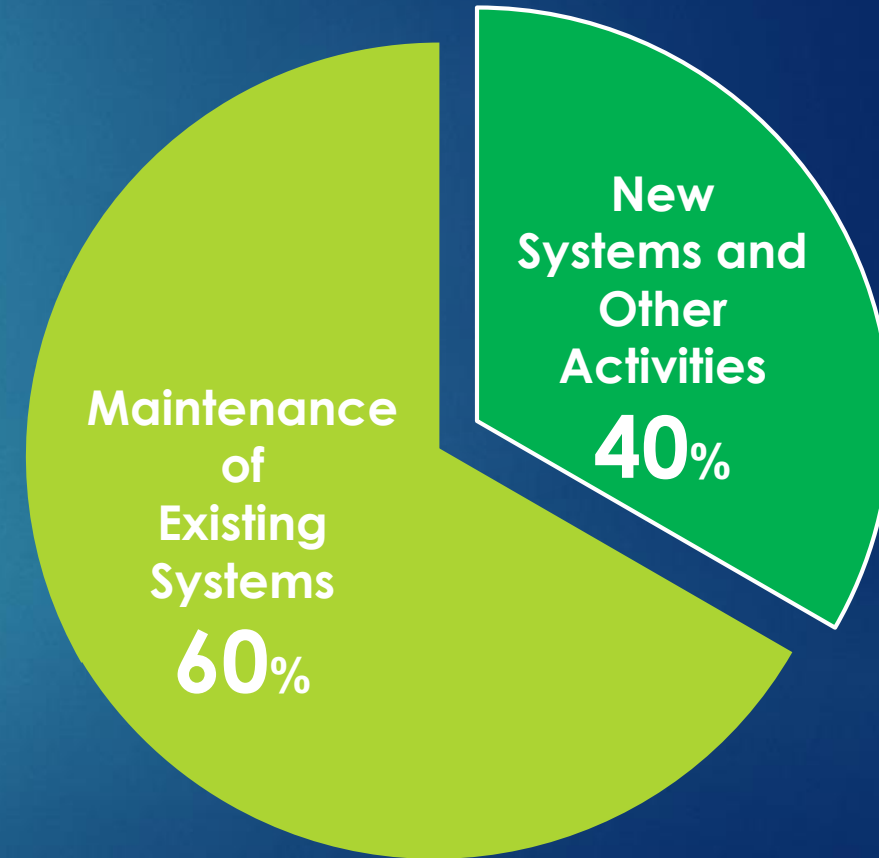
7. Implementing and Evaluating the System in SDLC(1/2):

- ▶ This phase involves training users to handle the system. Vendors do some training, but oversight of training is the responsibility of the systems analyst.
- ▶ Analyst needs to plan for a smooth conversion from the old system to the new one.
- ▶ This process includes converting files from old formats to new ones, or building a database, installing equipment, and bringing the new system into production.
- ▶ Actually, evaluation takes place during every phase.
- ▶ A key criterion that must be satisfied is whether the intended users are indeed using the system.

7. Implementing and Evaluating the System in SDLC(2/2):


The Impact of Maintenance:

- Maintenance is performed for two reasons: The first is to correct software errors or bugs. Bugs in commercial PC software are often documented as “known anomalies,” and are corrected when new versions of the software are released or in an interim release. In custom software (also called bespoke software), bugs must be corrected as they are detected.
- The other for maintenance is to enhance the software’s capabilities in response to changing organizational needs such as : request additional features, the business changes over time, or Hardware and software are changing.





Where are we heading
to?



Thank you, and all your
questions are welcomed.